


<b>AWARD/CONTRACT</b>		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING		PAGE OF PAGES 1   2	
2. CONTRACT (Proc. Inst. Ident.) NO. EP-C-17-031/68HERC22F0023				3. EFFECTIVE DATE See Block 20C		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. PR-R3-21-00287	
5. ISSUED BY CODE CAD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: W136 Cincinnati OH 45268-0001		6. ADMINISTERED BY (If other than Item 5) CODE					
7. NAME AND ADDRESS OF CONTRACTOR (No., street, country, State and ZIP Code)  TETRA TECH, INC. Attn: George Townsend 10306 EATON PL STE 340 FAIRFAX VA 22030				8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)			
				9. DISCOUNT FOR PROMPT PAYMENT			
				10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN		ITEM	
CODE 198549560		FACILITY CODE					
11. SHIP TO/MARK FOR CODE R3 Region 3 US Environmental Protection Agency 1650 Arch Street Philadelphia PA 19103-2029		12. PAYMENT WILL BE MADE BY CODE RTP FMC RTP Finance Center US Environmental Protection Agency RTP-Finance Center (AA216-01) 109 TW Alexander Drive www2.epa.gov/financial/contracts Durham NC 27711					
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304 (c) ( ) <input checked="" type="checkbox"/> 41 U.S.C. 3304 (a) ( )				14. ACCOUNTING AND APPROPRIATION DATA See Schedule			
15A. ITEM NO	15B. SUPPLIES/SERVICES			15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	Continued						
15G. TOTAL AMOUNT OF CONTRACT						\$51,244.07	
<b>16. TABLE OF CONTENTS</b>							
(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
PART I - THE SCHEDULE				PART II - CONTRACT CLAUSES			
	A	SOLICITATION/CONTRACT FORM			I	CONTRACT CLAUSES	
	B	SUPPLIES OR SERVICES AND PRICES/COSTS		PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.			
	C	DESCRIPTION/SPECS./WORK STATEMENT			J	LIST OF ATTACHMENTS	
	D	PACKAGING AND MARKING		PART IV - REPRESENTATIONS AND INSTRUCTIONS			
	E	INSPECTION AND ACCEPTANCE			K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
	F	DELIVERIES OR PERFORMANCE			L	INSTRS., CONDS., AND NOTICES TO OFFERORS	
	G	CONTRACT ADMINISTRATION DATA			M	EVALUATION FACTORS FOR AWARD	
	H	SPECIAL CONTRACT REQUIREMENTS					
<b>CONTRACTING OFFICER WILL COMPLETE ITEM 17 (SEALED-BID OR NEGOTIATED PROCUREMENT) OR 18 (SEALED-BID PROCUREMENT) AS APPLICABLE</b>							
17. <input checked="" type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)				18. <input type="checkbox"/> SEALED-BID AWARD (Contractor is not required to sign this document.) Your bid on Solicitation Number 68HERC21R0206, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your bid, and (b) this award/contract. No further contractual document is necessary. (Block 18 should be checked only when awarding a sealed-bid contract.)			
19A. NAME AND TITLE OF SIGNER (Type or print)				20A. NAME OF CONTRACTING OFFICER Mark Cranley			
19B. NAME OF CONTRACTOR TETRA TECH, INC.		19C. DATE SIGNED		20B. UNITED STATES OF AMERICA BY  (Signature of the Contracting Officer)		20C. DATE SIGNED 10/21/2021	
BY _____ (Signature of person authorized to sign)							

## CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED  
EP-C-17-031/68HERC22F0023PAGE OF  
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NAME OF OFFEROR OR CONTRACTOR

TETRA TECH, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
0001	DUNS Number: 198549560 TOCOR: Lydia Bailey InvoiceApprover: Lydia Bailey Alt Invoice App: Raffaella Marano Delivery: 10/25/2022 Accounting Info: 21-22-B-03LP0CB-000B63-2532-2103LA1012-001 BFY: 21 EFY: 22 Fund: B Budget Org: 03LP0CB Program (PRC): 000B63 Budget (BOC): 2532 DCN - Line ID: 2103LA1012-001 Period of Performance: 10/26/2021 to 10/25/2022  New FFP Task Order for Researching Information Gaps to Update the Preliminary Conceptual Ecological Risk Assessment Model and Science Strat in accordance with the attached PWS. Product/Service Code: R499				51,244.07

## PERFORMANCE WORK STATEMENT

**Tetra Tech, Inc.**  
**Contract#EP-C-17-031**  
**PR-R3-21-00287**  
**Task Order #TBD**

### A. TITLE

Researching Information Gaps to Update the Preliminary Conceptual Ecological Risk Assessment Model for Microplastics in the Potomac River

<b>Task Order Contracting Officer Representative (TOCOR)</b>	<b>Alternate Task Order Contracting Officer Representative (ALTOCOR)</b>
<b>Name: Raffaella Marano</b>	<b>Name: Lydia Bailey</b>
<b>Office: 215-814-2397</b>	<b>Office: 215-814-5339</b>
<b>Address: US EPA Region 3/Water Division</b>	<b>Address: US EPA Region 3/Water Division</b>
1650 Arch Street	1650 Arch Street
Mail Code: 3WD42	Mail Code: 3WD00
Philadelphia, PA 19103-2029	Philadelphia, PA 19103-2029
<b>Email: <a href="mailto:marano.raffaella@epa.gov">marano.raffaella@epa.gov</a></b>	<b>Email: <a href="mailto:bailey.lydia@epa.gov">bailey.lydia@epa.gov</a></b>

### B. PERIOD OF PERFORMANCE

Date of Task Order (TO) award through 12 months following award.

### C. PURPOSE OF TASK ORDER

The purpose of this TO is to update the preliminary conceptual ecological risk assessment (ERA) model for microplastics in the Potomac River completed under TO #68HERC20F0213 (Contract EP-C-17-031). The document that this TO will update is the Preliminary Conceptual Ecological Risk Assessment for Microplastics on Striped Bass in the Potomac River Estuary. This new TO will research data and information gaps identified in the two documents under TO #68HERC20F0213 and update the ERA once new information is researched. This TO will continue to inform restoration efforts in the Chesapeake Bay and watershed by helping to drive further research on how microplastics affect restoration goals for fishery species such as Striped Bass. The Potomac River is one of the largest tributaries to the Chesapeake Bay and will continue to serve as an appropriate place to start to address the ecological impacts of microplastics on aquatic resources in the larger Chesapeake Bay ecosystem.

### D. BACKGROUND

Microplastics are an emerging contaminant of concern. Microplastics are generally defined as polymer particles less than 5 mm long. The potential human health and environmental impacts of plastic pollution is being studied globally. Its impacts on aquatic resources and the food chain could have lasting impacts. The Chesapeake Bay's Science and Technical Advisory Committee recognized this growing threat and hosted a two-day workshop in the Spring of 2019 called "Microplastics in the Chesapeake Bay and its Watershed: State of the Knowledge, Data Gaps, and Relationship to Management Goals". Over 50 participants from government, academia, consulting, and non-governmental organizations met to present current research and policy initiatives, followed by facilitated discussion on data gaps and needs.

The 2019 workshop was designed within the framework of an ecological risk assessment (ERA), treating microplastics in the environment similarly to other pollutants. Participants noted that while the collective understanding has progressed in recent years, there is still little information on the magnitude and distribution of microplastics within the watershed, much less the potential impact microplastic pollution may be having on living resources. Workshop participants concluded that microplastics pose a potential serious risk to successful restoration of the Chesapeake Bay watershed.

Under TO #68HERC20F0213, the Contractor completed a 1) Uniform Size Classification and Concentration Unit Terminology for Broad Application in the Chesapeake Bay Watershed report; 2) Preliminary Conceptual Ecological Risk Assessment for Microplastics on Striped Bass in the Potomac River Estuary report; and 3) Microplastic Monitoring and Science Strategy for the Chesapeake Bay report. Results of these reports identified data and information gaps that exist and needed to further describe and model potential risks associated with microplastic pollution on striped bass and other important living resources in the Chesapeake Bay watershed.

This new TO request will build upon the successes of TO #68HERC20F0213 to update the ERA conceptual model. The Contractor, in partnership with stakeholders, shall select at least one information gap to research. The Contractor shall use the research to update the ERA conceptual model in partnership with the Chesapeake Bay Program's Plastic Pollution Action Team (PPAT) and other Chesapeake Bay Program committees as necessary.

## **E. QUALITY ASSURANCE**

The tasks in this TO require the use of existing data and use of modeling tools for data analysis. The Contractor shall use the Quality Assurance Project Plan (QAPP) developed and approved under TO #68HERC20F0213 (QAPP 537, Revision 0). All quality assurance (QA) activities shall be in conformance with this QAPP. Documentation of all analyses shall also indicate how types, quantity, and quality of data have been quality assured and maintained. In addition, the Contractor shall ensure that metadata is compiled in a mutually agreed upon format. All products should be detailed so that the decisions and analyses are completely transparent to a third party. The Contractor shall alert the TOCOR regarding any quality issues within two weeks of such issue, should they arise. Any project specific QA issues shall be reported in the progress reports as specified under Subtask 1.2 (Communication and Regular Reporting). If an addendum to the QAPP is required, the Contractor shall develop the addendum and submit to EPA for a 45-day review (Subtask 2.2 (Determine if a QAPP Addendum is Required and Update If Required)).

## **F. TASKS**

The contractor shall provide support for the below tasks. (Contract Level PWS 2. Task Areas 1 and 2). Written technical exchange shall be utilized, if necessary, to provide further detail on specific work included in the PWS, provide guidance, or approve or comment on deliverables. The TOCOR, the Alternate TOCOR (if the TOCOR is on leave or travel), and the Contracting Officer (CO) are the only individuals authorized to issue technical exchange. The contractor shall anticipate working with the TOCOR and staff technical lead(s) from Region 3 Water Division (WD) to furnish the requested technical exchange.

### **Task 1: Establish Communication and Prepare Project Deliverables (Contract Level PWS 2 Task Areas 3 & 6)**

#### **Subtask 1.1 Communication/Kickoff Call**

The contractor shall participate by conference call in a Kickoff Meeting as determined by the TOCOR to discuss the following: points of contact, roles and responsibilities, timelines, the schedule of benchmarks, milestones and deliverables, establish dates and times for bimonthly calls, monthly technical progress reports, and general TO administrative information. The Kickoff Call shall be scheduled within seven (7) days of the award of the TO and the contractor shall provide meeting notes from the Kickoff Call within five (5) business days after the Kickoff Call. The contractor shall furnish to the TOCOR monthly progress reports by email which shall include status updates of all the tasks of this PWS as well as any difficulties encountered, and remedial action taken during the reporting period. Additionally, the monthly progress reports shall outline expected activities per task in the next reporting period. Finally, monthly progress reports shall list all completed deliverables to date.

#### **Subtask 1.2 Communication and Regular Reporting**

The TOCOR will coordinate and set-up bimonthly conference calls or webinars (i.e., one meeting every two months) between EPA staff and the Contractor's technical lead to discuss the status and progress of the work under this TO. The contractor shall participate in these bimonthly calls/webinars. The TOCOR may modify the frequency of conference calls based on project progress.

### **Subtask 1.3 Coordination and Notification with TOCOR**

The contractor shall notify the TOCOR of any problems, delays, or questions as soon as they arise, including immediate written notification of any TO delays via email.

### **Subtask 1.4 Coordination and Notification Issues with External Parties**

This task requires coordination with other stakeholders and therefore it is particularly important that the Contractor notify the TOCOR of issues, problems, questions, or delays as soon as they become apparent or if they are anticipated. The use of teleconference, email, or webinar systems such as Microsoft Teams or Zoom for Government (ZoomGov) are acceptable for use as communication tools under this TO.

### **Subtask 1.5 Reporting and Meeting Minutes**

In general, written materials including meeting summaries shall be furnished by the Contractor within five (5) business days after the conference call/webinar in draft form for the TOCOR to review; then a final written deliverable shall be furnished within five (5) business days after receipt of written technical exchange from the TOCOR, including the TOCOR's comments and edits (the TOCOR will provide comments within five (5) business days).

## **Task 1 Deliverables**

<b>Task</b>	<b>Subtask</b>	<b>Deliverable</b>	<b>Due</b>
1	1.1	Brief, written progress reports as email to the TOCOR.	Due monthly or upon request by the TOCOR for the duration of this TO.
1	1.2	Project meetings and other communications, such as conference calls or webinars.	Due bimonthly or upon request by the TOCOR for the duration of this TO.
1	1.3	Brief, written reports as emails to TOCOR detailing problems, delays, or questions.	Due immediately and as needed to TOCOR.
1	1.4	Brief, written reports as emails to TOCOR detailing problems, delays, or questions.	Due immediately and as needed to TOCOR.
1	1.5	Meeting notes and summaries detailing topics discussed and discussion among stakeholders submitted via email.	Due within 5 business days of a meeting to TOCOR.

## **Task 2. Additional research to fill in gaps identified in Science Strategy and ERA (Contract PWS 2. Task Areas 1, 2, 3, 4, 5, 6,)**

### **Subtask 2.1 Identify Priority Research Information Gap**

The Contractor shall work with the PPAT to identify priority information gaps reported in the ERA and science strategy to address research needs. The Contractor shall collaborate with the PPAT to select at least one information gap and perform research.

### **Subtask 2.2 Determine if QAPP Addendum is Required and Update If Required**

The Contractor shall review the existing QAPP and EPA's QA Policies to determine if the new information gathering will require an addendum to QAPP "Developing a Preliminary Conceptual Ecological Risk Assessment Model and Science Strategy for Microplastics in the Potomac River" (QAPP 537, Revision 0) which was approved by EPA on July 10th, 2020. If an addendum is required, the Contractor shall develop the addendum and submit to EPA for a 45-day review.

### **Subtask 2.3 Research Information Gaps Identified in Science Strategy**

The Contractor shall conduct and/or interpret research to address at least one of the information gaps identified in the science strategy and/or ERA. The contractor shall provide progress update presentations via conference call/webinar to EPA and/or PPAT at the request of the TOCOR.

### **Subtask 2.4 Update Preliminary Conceptual ERA**

The Contractor shall update the ERA conceptual model based on updated information (identified in Subtask 2.3). The Contractor shall allow for at least a 15-day review and comment period by the PPAT and/or other Chesapeake Bay stakeholder groups (i.e., Science and Technical Advisory Committee). The Contractor shall provide a response to comment document and an updated draft based on PPAT comments. The Contractor shall present its findings and new iterations of the model to the PPAT via conference call/webinar and/or email.

## **Task 2 Deliverables**

<b>Task</b>	<b>Subtask</b>	<b>Deliverable</b>	<b>Due</b>
2	2.1	A presentation discussing the different information gaps identified in the ERA and science strategy and options to research them to the PPAT.	Due 3 months from TO Award Date to TOCOR.
2	2.2	Report in form of email to TOCOR identifying if an addendum is required. If so, a QAPP Addendum will be submitted to TOCOR for EPA review and approval.	Due 4 months from TO Award Date to TOCOR.
2	2.3	Report out on research conducted and/or interpreted in the form of one or more presentations to the PPAT via conference call or webinar.	Due upon request from TOCOR or PPAT during Performance Period.
2	2.4	New iteration of the ERA conceptual model reviewed by the PPAT that includes information collected during from research conducted during the performance period and submitted to TOCOR for approval via email.	Due 10 months TO Award date to TOCOR.

## **G. TECHNICAL EXPERTISE REQUIRED BY KEY CONTRACTOR STAFF**

Key staff should demonstrate experience developing ERAs for emerging contaminants of concern. The key technical individual(s) must have experience with development of physical, chemical, and aquatic life exposure-response relationships in freshwater, estuarine, and marine environments. This requires biostatistics (particularly R and writing and reviewing code), water chemistry as it relates to non-conventional pollutants and effects on aquatic life, and the relevant body of literature. The individual(s) working under this TO need to have the knowledge, skills and experience with ecological risk assessments and models as well as microplastic pollution. These individuals should also demonstrate the ability to collaborate with multiple partners on retrieving data and formulating an ERA based on that research. The ability to facilitate discussions among multiple partners is also highly desired.

## **H. ANTICIPATED TRAVEL**

All travel under this TO shall follow TO requirements and only according to specific written documentation from the TOCOR. Most interactions shall be conducted through conference calls and webinars. When in-person meetings are required, the length of the meetings and the amount of contract personnel needed for each trip shall be provided to the contractor through written documentation from the TOCOR. The contractor shall plan for not more than two overnight trips (covering not more than two days and one night each, to Annapolis, Maryland for not more than two

project staff) over the period of performance.

## **I. ACCEPTANCE CRITERIA**

The Contractor shall prepare high quality products and that are reproducible and transparent. Deliverables shall be edited for grammar, spelling, and logic flow. The technical information shall be reasonably complete and presented in a logical, readable manner. Figures submitted shall be of high quality similar to presentations developed for national scientific forums and should be formatted as jpeg or TIFF files. Text deliverables shall be provided in mutually agreed upon formats. Any and all spreadsheets, raw data, coding, and modeling work (including all model runs with essential data to replicate model runs) shall be provided in mutually agreed upon formats. The contractor shall ensure that all final major deliverables be Section 508 compliant in accordance with the policies referenced at <http://www.epa.gov/accessibility/>.

## J. DELIVERABLES AND SCHEDULE

<b>Task</b>	<b>Subtask</b>	<b>Communication Deliverables</b>	<b>Due</b>
1	1.1	Brief, written progress reports as email to the TOCOR.	Due monthly or upon request by the TOCOR for the duration of this TO.
1	1.2	Project meetings and other communications, such as conference calls or webinars.	Due monthly or upon request by the TOCOR for the duration of this TO.
1	1.3	Brief, written reports as emails to TOCOR detailing problems, delays, or questions.	Due immediately and as needed to TOCOR.
1	1.4	Brief, written reports as emails to TOCOR detailing problems, delays, or questions.	Due immediately and as needed to TOCOR.
1	1.5	Meeting Notes and summaries detailing topics discussed and discussion among stakeholders submitted via email.	Due within 5 business days of a meeting to TOCOR.
<b>Task</b>	<b>Subtask</b>	<b>Updated ERA and Science Strategy Deliverables</b>	<b>Due</b>
2	2.1	A presentation discussing the different information gaps identified in the ERA and science strategy and options to research them to the PPAT.	Due 3 months from TO Award Date to TOCOR.
2	2.2	Report in form of email to TOCOR identifying if an addendum is required. If so, a QAPP Addendum will be submitted to TOCOR for EPA review and approval.	Due 4 months from TO Award Date to TOCOR.
2	2.3	Report out on research conducted and/or interpreted in the form of one or more presentations to the PPAT via conference call or webinar.	Due upon request from TOCOR or PPAT during Performance Period
2	2.4	New iteration of the ERA conceptual model reviewed by the PPAT that includes information collected during from research conducted during the performance period and submitted to TOCOR for approval via email.	Due 10 months TO Award date to TOCOR.